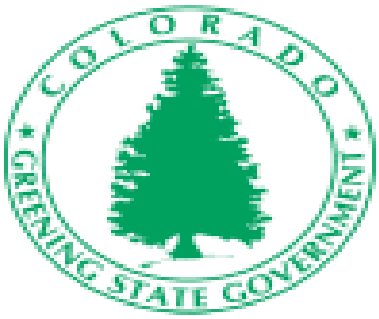
Colorado Department of Public Health and Environment
Greening Government Plan



Date: June 19, 2006
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Reviewed and Approved By _____ on _____.

_____
Signature of Agency Head or other Designee

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EXECUTIVE ORDER
GREENING OF STATE GOVERNMENT

Pursuant to the authority vested in the Office of the Governor of the State of Colorado, I, Bill Owens, Governor of the State of Colorado, hereby issue this Executive Order concerning enhancing the efficiency and greening of state government.

1. Background and Need

State government needs to operate as efficiently as possible, but at the same time it is important to set an example through efforts to reduce the use of limited resources, increase the cost-effectiveness of state government, and improve Colorado's environment and the health of our children and future generations. Accordingly, the State of Colorado is committed to business practices that contribute to the mutually compatible goals of economic vitality, a healthy environment and strong communities.

The State has already taken significant steps in this direction, particularly under Executive Order D 014 03, Energy Performance Contracting to Improve State Facilities. The Department of Corrections through its Energy Management Program avoids $1.8 million in annual costs (10 percent of its utility budget) and is planning additional facility improvements that could result in avoided annual costs exceeding $1 million. The Department of Human Services through its aggressive program to manage its $5.3 million annual utility budget achieved a 10 percent level of cost avoidance and is implementing projects through performance contracts that will avoid an additional $1,000,000 in annual utility costs. The Department of Personnel and Administration, with the Judicial Department and the Department of Labor & Employment, is using performance contracting for a large-scale, comprehensive effort that captures $800,000 in annual reductions to pay for $14 million in facility upgrades. Other state agencies including the Department of Military Affairs, Colorado School for the Deaf and the Blind, Department of Public Health and Environment, and Department of Natural Resources are implementing similar projects.

Within state government, such sustainable practices require decisions based on a systematic evaluation of the costs and long-term impacts of an activity or product on health and safety, communities, and the environment and economy of the State of Colorado. State agencies, through changes in daily operations, ongoing programs, and long-range planning, are able to simultaneously have a significant positive impact on the environment, economic efficiency of state government, and the character of our communities. Government can also foster markets for emerging environmental technologies and products. Finally, state government can be a model for environmental leadership by implementing pollution prevention and resource conservation programs that not only enhance environmental protection, but also save taxpayers' money through reduced costs, including reduced material costs, waste disposal costs and utility bills.

The most effective manner for state government to implement such programs is through the establishment of systems and procedures to evaluate costs and manage environmental impacts. This system should be developed and implemented consistently across state government with the assistance of the Governor's Office of Energy Management and Conservation, Department of Public Health and Environment and Department of Personnel and Administration.

2. Directive

A. I hereby direct the Executive Directors of all state agencies and departments to evaluate their current business operations in accordance with the goals of this Order and develop and implement policies and procedures to promote environmentally sustainable and economically efficient practices, including, but not limited to:
   i. Adopting the United States Green Buildings Council's Leadership in Energy and Environmental Design Green Building Rating System for Existing Buildings (LEED-EB) in operating, maintaining and managing existing buildings, to the extent applicable and practicable.
   ii. Incorporating LEED for New Construction (LEED-NC) practices to design energy and resource efficient new buildings, to the extent that this is deemed cost-effective.
   iii. Initiating an energy management program to monitor and manage utility usage and costs, as resources become available.

B. I hereby direct the Executive Directors of the Governor's Office of Energy Management and Conservation, Department of Public Health and Environment, and Department of Personnel and Administration, to establish a Colorado Greening Government Coordinating Council (Council) to include representatives from each state agency and department.

C. I hereby direct the Council to develop, implement, and augment programs, plans and policies that save money, prevent pollution and conserve natural resources throughout state government management and operations, including but not limited to source and waste reduction, energy efficiency, water conservation, recycling, fleet operations, environmental preferable purchasing, and establishing state-wide goals to save taxpayers' money and reduce environmental impacts.

D. I hereby direct State agencies and departments to provide all reasonable assistance and cooperation requested by the Council for the purpose of carrying out this order.

E. I hereby direct each State agency or department to annually submit to the Council a list of all projects implemented in accordance with this Executive Order in the previous calendar year and the resultant environmental benefits and cost savings.

To assist agencies in this effort, the Governor's Office of Energy Management and Conservation offers technical services to all State departments and agencies.

3. Duration

This Executive Order shall remain in force until further modification or rescission by the Governor.

GIVEN under my hand and the
Executive Seal of the State
of Colorado, this 15th
day of July, 2005.

Bill Owens

Governor

1.Agency Information, Impact Identification and Greening-Government Team

1.1 Agency Description and Scope

The Colorado Department of Public Health and Environment is committed to protecting and preserving the health and environment of the people of Colorado. Our role is to serve the people of Colorado by providing high-quality, cost-effective public health and environmental protection services. In addition to maintaining and enhancing our core programs, we continue to identify and respond to emerging issues that could affect Colorado's public and environmental health. The department has a staff of approximately 1,150 within the two buildings at the Cherry Creek main campus and the Laboratory Services Division.

1.2 Agency Impacts on the Environment and Human Health

Like most office buildings, the Department's two main campuses have a wide range and number of daily activities that cause environmental impacts. Most of these impacts come from daily office activities that require consumption of natural resources such as water, energy and paper products.

- In the 2006 FY, the Cherry Creek and LSD campuses projected a combined energy expenditure estimated at 2,898,251-kilowatt hours.
- While water use is not a huge environmental aspect for the department, it is primarily used in bathroom utilities and for watering the lawn of the Cherry Creek and LSD campuses. Limiting water use must be evaluated due to the recent droughts and rising waster cost over the last few years.
- The department's most evident environmental impact is significant amounts of office waste, specifically from the consumption of paper products and common office supplies.
- Transportation and use of the department's vehicle fleet also impacts the environment through emissions of Carbon Dioxide and other greenhouse gases. Vehicle emissions and natural resource consumption are considerable environmental aspects due to the vast majority of the 1,150 employees who must commute to work by automobiles everyday.
- Many cleaning and janitorial products often contain or release harmful chemicals. While such supplies may not be a primary aspect of the department, the daily use of such products in cleaning and maintenance operations makes it necessary to purchase products that are environmentally friendly.

1.3 Agency Operational Costs

Operational costs for the department are currently not available for the Cherry Creek Campus, which is the primary site for the department. Utility costs are sent to the

tenant of the Cherry Creek Campus and are currently unavailable to the department. Due to the department owning the LSD building operational costs are available.

FY 2005 Laboratory Services Division 8100 E Lowry, Bldg 1307, Denver June	GAS THRM USD	ELECTRIC KWH HRS	WATER GAL\1000
July	3742	238898	
August	5363	221736	
September	6487	236456	1316
October	10231	197565	
November	19878	209322	190
December	20636	221488	
January	13477	191550	167
February	14366	189605	
March	11638	191401	210
April	8750	193114	
May	4385	199535	389
June	3741	231796	
YTD ACTUAL EXPENDITURES	**122694**	**2522466**	**2272**

Utility Average (03 - 05)		
GAS THRM USD	ELECTRIC KWH HRS	WATER GAL\1000
120587	**2594725**	**4528**

1.4 CDPHE Greening Government Team Members

Establishing a Greening Government Team has been successful through the use of an email survey to determine what employees consider the most predominant environmental aspects and impacts within the Department. The questionnaire also included a section asking employees if they would be interested in volunteering on the Greening Government Project.

Greening Government Team

Name	Division
Clay Trumpolt	Hazardous Materials and Waste Management Division
Paul Buck	Air Pollution Control Division
Clark Wilson	Consumer Protection Division
Steve Burnitt	Disease Control and Environmental Epidemiology Division
Elaine Daniloff	Health Facilities
Susan Parachini	Consumer Protection Division

Donie Pate	Water Quality and Conservation Division
Michael Trujillo	Laboratory Services Division
Patrick Hamel	Sustainability Division
Lynette Myers	Sustainability Division

CDPHE Volunteers for Greening Government Project

Name	**Division**
Wes Carr	Water Quality and Conservation Division
Emily Clark	Water Quality and Conservation Division
Lisa Silva	Air Pollution Control Division
Liz Sapio	Sustainability Division
Robert Miller	Water Quality and Conservation Division
Peter Brandauer	Disease Control and Environmental Epidemiology Division
Jennifer Mattox	Air Pollution Control Division
Joni Canterbury	Air Pollution Control Division
Cara Snyder	Laboratory Services Division
Sean-Casey King	Health Facilities
Kenneth Weaver	Hazardous Materials and Waste Management Division
Susan Parichini	Consumer Protection Division
Candace Corley	Disease Control and Environmental Epidemiology Division
Melanie Roth-Lawson	Health Facilities

2 Long-Term Goals and Vision

Long-term Greening Government goals include taking action to improve environmental and economic efficiency in projects over an extended period of time depending on the department's budget allowance. The predetermined and developing goals will be to promote an overall sustainable system by incorporating an Environmental Management System and other policies following a cycle of continual improvement. The department expects to apply for LEED-EB certification at the Laboratory Services Division building. This certification is a long-term goal with no specific timeframe currently developed.

2.3 Long-Term Energy Goals

The department is looking for many ways to continually improve energy efficiency. One of many future goals of reducing energy use is through disposing of all outdated products that are inefficient. Future changes include replacing current CRT computer monitors with flat screen LCD monitors which are much more energy efficient and also easier to dispose of due to containing much less hazardous materials.

Another project for reducing unnecessary energy consumption includes changing from conventional light switches to motion sensing switches to limit use of lighting when not needed. This plan includes adding light switches to offices and conference rooms that currently don't have light controls. These additional light switches will make it possible to turn of lights when unneeded, which is currently not possible.

2.4 Long-Term Waste Reduction Goals

Although the department already has created many waste reduction programs, long-term projects must also be developed. The primary long-term goal in waste reduction is to continue developing a recycling program and educate employees on the program. Because paper waste is a key component in the total waste of most businesses, it must be addressed. To reduce paper waste, the department looks to promote the use of electronic media over hard copies of forms. The transition to electronic documentation will greatly reduce the amount of paper wasted in any office setting. Another future plan to limit paper use is converting to double sided printing whenever possible.

2.5 Long-Term Water Conservation Goals

As water shortages continue to be an ongoing issue, sustainable water use will become an essential area to develop. To truly conserve water, it is necessary to use a sustainable amount by limiting excessive landscape watering. Landscaping uses 20 to 50 percent of all residential water use. To accomplish the task of conserving water, the department looks to xeriscaping and incorporating natural habitats that promote water-conserving landscapes.

2.6 Long-Term Transportation Goals

As technology in alternative fuels continues to develop, so should the use of the environmentally efficient products. According to the EPA, emissions derived from personal transportation are the most significant form of daily pollution from the average person. The department looks to reduce transportation pollution through purchasing more efficient vehicles including but not limited to hybrids, vehicles that run on ethanol, and biodiesel.

2.7 Long-Term EPP Goals

Selecting which products are purchased and used can have a huge variation on a department's environmental impact, which is why Environmentally Preferable Purchasing is so significant especially in an office setting. The department looks to eventually only buy green certified office products.

3 Short-term Actions and Priorities

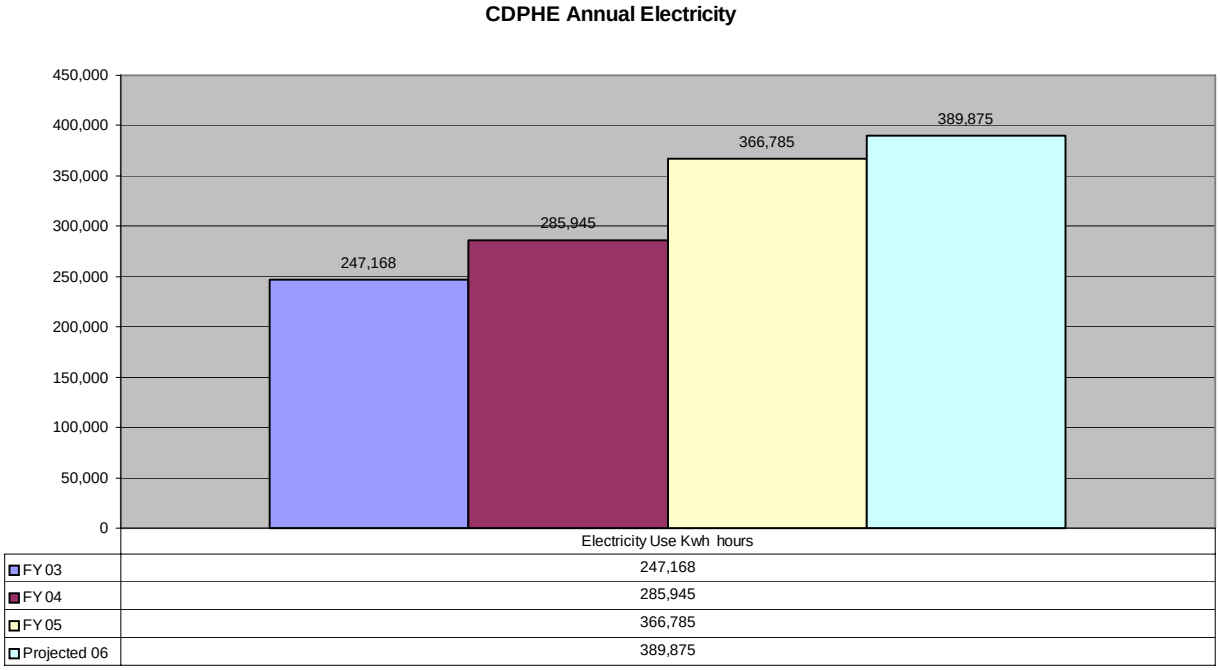
There are many short-term environmental projects underway at both campuses. In 2005, an Environmental System Management, or EMS, was developed and has proven to be extremely useful for implementing sustainable development. The department looks to continue improving its environmental practices through a joint effort of the Greening Government and Internal EMS Teams working to promote sustainable practices throughout the Department.

3.3 Priority and Area Goals

Specific areas of focus include energy efficiency, waste reduction, and fleet efficiency for the two main campuses. LSD is drastically looking to conserve water through means of xeriscaping and installing water efficient fixtures over the next year. The Cherry Creek Campus being the primary office of the department looks to promote recycling and waste reduction of office products; particularly paper use. The Cherry Creek Campus is also focused on being a more environmentally conscious office by increasing its Environmentally Preferable Products.

3.4 Energy Efficiency Projects

Energy consumption is one of the primary areas at the department that must be addressed. Electricity use has continued to rise over the past few years therefore making it necessary to be a major focal point for the Department. As viewed in the graph below, energy use continues to rise at Cherry Creek Campus even with recent energy efficiency projects. While the lighting retrofit, referred to later on in this report, reduced energy costs $96,000 per year; energy is clearly still a key area to focus on improving.



Within the Cherry Creek campus, there is a fair amount of vending machines that require more energy then necessary. Vending machines with misers that turn off the cooling system in vending machine when not needed can reduce energy consumption in each machine by 41 percent. The department has completed a study to assess the misers' effect on energy consumption. Currently, the department has two misers installed at LSD and is working to install nine more vending machines located in the Cherry Creek Campus.

Computers make up a very large portion of the energy used at any office and often lead to excessive energy consumption. The department is considering starting a new policy that would standardize the use of power-down / sleep settings by reducing the time from one-hour to15 minutes on monitors. Another future measure to save energy would be phasing out the current CRT computer monitors for flat screen LCD's that use only 35 watts of power; about the same as a small light bulb and much more efficient then CRT monitors which uses around 80 watts.

The Department is currently near the end of a lighting retrofit for the Laboratory Service Division. The project is estimated to reduce 62,293-kilowatt hours per year and save approximately $4,100 per year according to calculations from Xcel Energy. This project includes reducing from 2,000 four-foot T-8 lamps to 1,500 lamps and will save approximately $3,100 in maintenance costs alone each year.

3.5 Waste Management and Recycling Programs

To reduce generating waste, first and foremost a detailed and comprehensive waste audit needs to be conducted. Once completing a waste audit, more information will be available to determine how to improve waste reduction. To continually reduce waste, the departments recycling plan must be promoted. A current plan is in the process of development but currently requires many more important details and operations. Further action must be taken to promote recycling by including more recycling bins, employee education, and employee encouragement to recycle. The recycling program will continue to follow the current recycling of glass, aluminum, plastic #1 and #2, newspaper, magazines, office paper, phonebooks, cardboard, paperboard, batteries and cell phones.

As stated previously, office settings tend to produce an unnecessarily large portion of paper waste. Creating a policy and or promoting the use of electronic media for documentation can easily address the issue of excessive paper waste. Other procedures such as simply printing and copying everything double sided will greatly reduce the use and waste of paper. Paper reduction efforts in 2005 have saved the department $8,100 and approximately 1.6 million sheets of paper.

3.6 Transportation and Fleet Efficiency

The ultimate goal of the department in relation to greening government is to maximize efficiency not by making abrupt changes, but taking current practices and making them more efficient. To complete such a task, an audit of the department's fleet is in order to determine its efficiency. The department is looking to maximize its fleet's effectiveness by utilizing fuel efficient and environmentally friendly vehicles. While off road vehicles are needed for certain tasks, most often they are uncalled for. Therefore, the department looks to make use of fuel-efficient vehicles such as hybrids, and alternative fuels in the near future.

To maximize fleet efficiency the department will work with State Fleet Management to optimize a vehicle needs assessment and develop a more environmentally sound set of automobiles. In 2006, the department received 2 Honda Civic Hybrids (50 mpg) and 2 Ford Escapes (30 mpg). The estimated payback for hybrid vehicles is around 5 years with gas at 2.76 per gallon. The 2 Civics and 2 Escapes will be replacing 1 Jeep Cherokee, 1 GMC Safari van, and 2 Dodge Intrepids. Estimating all vehicle use at 12,000 miles per year, this will save the Department 980 gallons of fuel a year by replacing the four vehicles. The fleet also includes 3 additional 2005 Ford Escape Hybrids and1 2002 Toyota Prius for a total of 8 hybrids.

Employees commuting to work must also be addressed. The department has worked to improve employee commutes by promotion of carpools, public transportation, and bike riding through many incentives. Addition of bike lockers

is a current project to promote employees to avoid driving and pollution from emissions. The department has also created incentives for drivers who carpool or dive hybrids that get at least 45 mpg by reserving the closest parking spaces for them.

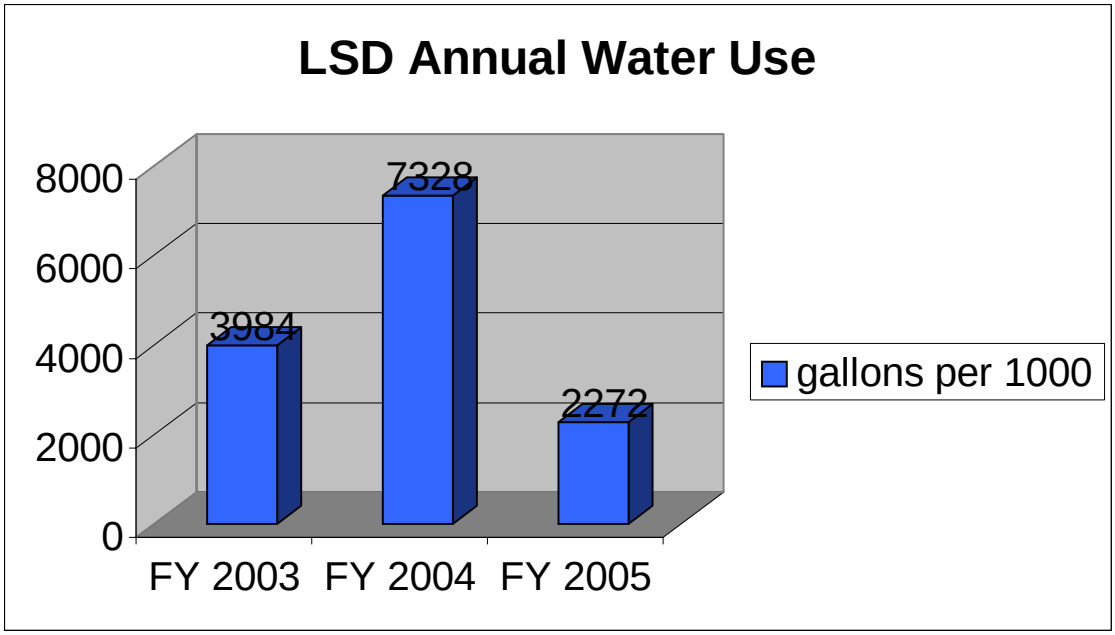
3.7 Environmentally Preferable Purchasing

Limiting hazardous materials around the office is always important for employees and the environment. Purchasing cleaning and maintenance products that are green and less harmful to janitorial staff is essential as well as ethical. Such products will help the internal environment by improving indoor air quality thus yielding better productivity and comfort of personnel.

The department is determined to increase the amount of environmentally preferable purchases in all areas it possibly can. The department will work with purchasing directors to always get environmentally preferable products whenever it is economically possible. The departments staff will be educated either by internet training modules and or by Greening Government reports on EPP to make sure the entire department is environmentally aware when making purchases. To get more EPP projects underway, the Department of Public Health and Environment will work with the Department of Personnel and Administration for assistance on EPP from the states Purchasing Director.

3.8 Water Use and Conservation

The Laboratory Services Division has started a task to significantly limit its use of water for landscape irrigation. In 2005, LSD replaced 7,000 square feet of blue grass with native plants and wood chips leading to a savings of 48,000 gallons during the watering season. LSD looks to further develop the xeriscaping program over the next year with converting an additional 50,000 square feet saving 780,000 gallons per year. The annual water use deviation is visibly noticeable as viewed on the following page.



3.7 Agency Action Steps

Greening Government Goal	Benefits of Projects	Specific Tasks	Responsible Staff	Timeline
Reduce energy consumption	41% energy reduction on vending machines	Install vending misers on all 9 machines	Kirk Mills	Implement once approved by vending company
Reduce energy consumption & Reduce hazardous materials	Energy savings Less hazardous material by getting rid of CRT monitors	Install LCD computer monitors	Clay Trumpolt Jason Glumac	In progress
Develop Recycling Program	Limit excessive waste	Develop & educate employees on recycling policy via e-mail	Clark Wilson Susan Parachini	Complete in FY 2006
Xeriscaping and landscaping	Reduce water consumption and saves money	Replace existing landscaping with low-water plants at LSD	Greening Government Team	Multiple year project
Reduce paper consumption	Estimated annual cost	Elimination of Monthly Leave	Paper reduction team	Complete in FY 2006

	savings = $6,792	Slips		
Reduce paper consumption by 38%	Reduce paper use by 325 packages	Convene team to develop plan and implement	Paper reduction team Patrick Hamel	Complete in FY 2006
Water Reduction	Estimated water reduction of 21,840 gallons a year	Install 4 water free urinals at LSD	Michael Trujillo	Complete in FY 2006

4 Management Systems

To put the Greening Government plan into practice, education and training of staff will be necessary to ensure that all employees comprehend and utilize the Greening Government ideals stated in this report. This will also help promote the program by bringing new volunteers and ideas to it every year as well as regulating the plan. Working with the Greening Government plan will complement the department's Environmental Management System to regulate internal development of environmental aspects and impacts.

4.1 Environmental Management System

Like many successful agencies, the Department of Public Health and Environment has worked to create an Environmental Management System (EMS) to help promote environmental awareness and economic efficiency in the office.

The EMS is based off the International Organization for Standardization (ISO) 14001:2004, the most accepted and common EMS template used.
The ISO 14001 has five primary stages following a cycle of continuous improvement.

I. **Environmental Policy**: The Colorado Department of Public Health and Environment is committed to protecting, preserving and improving the quality of life, environment, and ecosystems of Colorado. The department shall lead by example through:

- Integrating sustainable thinking into its daily activities, services and program functions.
- Effectively using natural resources to minimize the department's impact of the environment by implementing projects that conserve energy and water, minimize waste and prevent pollution while practicing economic responsibility.
- Complying with all applicable state policies and legal and other requirements.
- Promoting environmental awareness among department staff, other state of Colorado agencies, and the organizations and individuals with whom the department's personnel interact.

II. **Planning**: includes multiple steps to review the department's activities, environmental aspects and associated environmental impacts, review legal and other requirements, establish appropriate objectives and targets, and environmental programs for improved environmental performance

III. **Implementation & Operation**: includes defining roles and responsibilities, communicating and documenting the requirements of the EMS, and training staff to identify and meet the requirements

IV. **Checking & Corrective Action**: monitors the success of the EMS, verifies that policies, procedures and work instructions are adhered to, and take care of any necessary corrective measures. The department also maintains records to demonstrate conformance with the EMS

V. **Management Review**: at least annually, the top management reviews the aspects of the EMS to monitor and make sure it is adequately working as expected.

4.2 LEED-EB (**Leadership** in **Energy** and **Environmental Design** for **Existing Building**) Certification

To manage the efficiency of the department's buildings by becoming LEED certified would be accommodating to the Greening Government plan in many ways. LEED-EB certification would limit environmental impacts and improve energy efficiency, which in turn would create a better working environment and save money. LEED certification would also create a standard for managing the upkeep and efficiency of all the Department's building by making sure they are in compliance with LEED standards annually.

4.3 Integrating Environmental Impacts into Key Decision Points

Within the agency, there are many choices made that have significant environmental impacts. This is why it is necessary to integrate the Greening Government plan into daily operations decision-making processes. All members of the Greening Government Team and volunteers are needed to incorporate green thinking into decision processes. The team will specifically consider issues that are most significant; specifically energy use and daily purchases. To make sure questions are being asked, it is essential to have staff trained on the importance of Greening State Government. It shall be the responsibility of the Greening Government team members to promote environmentally sound actions and report their division's actions and or progress at frequent Greening Government team meetings. To ensure such actions are truly promoted, it shall be necessary to enforce the EMS training and environmental policy as well as its correlation to the Greening Government Plan.

Decision Points	Integrate Greening Government Policy
Building Management	• Ensure a contract for recycling • Promote and consider energy efficiency whenever relevant
Resource Use	• Promote printing double sided on paper policy • Promote electronic media over paper
Budgets	• Show that environmental relations must be incorporated into the budget
Purchasing	• Promote EPP products and show the cost difference compared to current products • Perform a study to determine if green products are usually more economically efficient and pay for themselves • Buy recycled products whenever possible
All decisions	• Train employees on Greening Government and the EMS through co.train.org to be environmentally aware when making decision

4.4 Education and Training of Staff

To truly integrate the Greening Government Plan, all employees at the department must be aware of the plan itself and the standards. To ensure that this will happen, training of all employees on Greening Government must occur. While the Greening Government Program is an ongoing process, it must be publicized and implemented to get the full effect of what it may accomplish. To educate all employees on the subject matter, a survey email has been sent out to determine how familiar employees are with the program, who would be willing to volunteer for the program, and how to be a more environmentally sound and efficient agency.

Besides the participation of the survey email, the department is still going to require training on the Greening Government plan to make sure all employees are aware and up to date with the program. This training will teach employees to be environmentally conscious when making decisions and will inform them on the background of the program. Upon completion of the department's Greening

Government report and review, an annual summary will be provided to keep all employees up to date on projects and progress. This will not only help educate employees on projects, but will help them comply with the policies and give them the opportunity for feedback and participation in the program.

5 Tracking Progress and Plan Review

5.1 Agency Tracking and Reporting Form

The department will complete and put forward an annual tracking report for all projects to determine how successful the department was at accomplishing goals that were set. This annual tracking will determine whether or not the program is consistent and continually being developed. The annual report will include a review of goals set out at the beginning of the year compared to what was accomplished and how successful the project was.

5.2 Continuous Improvement

To make sure continuous improvement of the Greening Government Plan will happen, the Greening Government Team will review the year's progress and work to ensure continuous environmental improvements were made. Each Greening Government Team member will should promote and check to make sure their own division is promoting green ideals. The Greening Government team members will assist in developing the program each year through the annual tracking report, which will determine if the Department has been successful in its annual goals. The team will also work to make sure the Greening Government action is working as planned and will monitor and adjust them depending on how sufficient each goal is accomplished. Feedback will be given to all employees each year after the annual report is completed to inform the entire staff on the success of the operation. This report will also offer suggestions, comments, and promote participation in the Greening Government Program.

Tracking Progress

Electricity Use (Kilowatt Hours)

Location	2005	2006	2007	2008	2009	2010
Cherry Creek	366,785					
LSD	2,522,466					

Water Use (Gallons per 1000)

Location	2003	2004	2005	2006	2007	2008
Cherry Creek	N/A	N/A	N/A			
LSD	3,985	7,328	2272			

Cherry Creek Campus Recycling

	2005	2006	2007	2008	2009	2010
Cardboard	130,000					
Office Paper	170,000					
Mixed Paper	83,000					
Glass, Al, Plastic	8,000					
Batteries	1,200					
Total Pounds Recycled	**392,200**					

CDPHE Fleet Assessment

	2005	2006	2007	2008	2009	2010
Total number of Hybrids and Alternative Fuel Vehicles	4 (3 Escapes) (1 Prius)	8 (5 Escapes) (1 Prius) (2 Civics)				
Total Number of Vehicles	104	104				

Environmentally Preferable Purchases

2005	2006	2007	2008	2009	2010
30% of paper purchased recycled					